

A Comprehensive Review of the Major Studies and Theoretical Models of Student Retention in Higher Education

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Abstract

Student retention rate has been a major concern for tertiary institutions around the world since the establishment of formal education. Generally speaking, not every student completes his or her study program. Although students fail to graduate for different reasons, some of them choose to voluntarily withdraw from their study programs. This might affect the image of the tertiary institutions in many different ways including their academic reputation and financial plans. To deal with such critical issue, there is a need for strategies and plans that are based on the findings of scientific research. The literature of student retention in higher education is rich of the theoretical models and empirical studies that gained consideration among researchers and educators over the last four decades. Therefore, some of these studies and theoretical models were comprehensively reviewed and discussed. The purpose of this is to provide researchers, educators and policy makers with a background to this issue and the latest strategies and techniques that help them deal with it as well as to find the common patterns and themes of the mostly reported student attrition factors.

Keywords: higher education, student retention, attrition, persistence

1. Introduction

Student attrition has been one of the most a critical issues in higher education for long time. Low student retention rates might affect tertiary institutions in many different aspects including their academic and financial plans. Thus, it is important to deal with such critical issue through strategies and plans that are based on the findings of scientific research. Moreover, it is essential for the educators and policy makes who seek solutions for such a problem to have an understanding of the background of the student retention phenomenon and the most frequent factors that lead students to leave their study programs. The literature of student retention in higher education is rich of the theoretical models and empirical studies that gained consideration among researchers and educators over the last four decades. This paper gives a comprehensive review of the highly cited and adopted studies and theoretical models of student retention in higher education. It does so by giving a historical background of student retention studies and models, trace their development over the past four decades, presents, review the major conceptual and theoretical models in the literature of student retention in higher education, and discuss their limitations.

2. Historical Background of Student Retention Studies

Although the student attrition phenomenon has been a major concern for educational institutions and educators since the establishment of the formal education system (Habley, Bloom, & Robbins, 2012; Seidman, 2005; Tinto, 1993), theoretical models arising from the systematic study of the phenomenon were not developed until the early 1970s (Berger, Ramirez, & Lyon, 2012). Berger et al. (2012, p. 13) divided the development of student retention studies chronologically into nine eras, as listed in Table 1. These eras start from the prehistory of student retention, when retention was not considered as an issue because graduating was not the goal of students, and continue to the current era, in which the theoretical and conceptual foundations of the phenomenon have been established and the implications set.

Further, Berger et al. (2012) divided these eras into two main categories. In the first category, they grouped all the eras before the 1960s (four eras) together, as they share a lack of a systematic approach towards student retention. The second category includes the last five eras, starting from the 1960s and continuing until the

present. The authors argued that during this period, student retention become a global concern and consequently systematic and theoretical studies were developed.

Table 1. Eras of the development of student retention studies

Era	Period
Retention Prehistory	1600s-mid-1800s
Evolving towards retention	Mid-1800s-1900
Early developments	1900-1950
Dealing with expansion	1950s
Preventing dropout	1960s
Building theories	1970s
Managing enrolment	1980s
Broadening horizons	1990s
Early twenty-first century	Current and future trends

3. Development of Student Retention Theoretical Models

Before 1970, various attempts were made to study the student attrition phenomenon (Bayer, 1968; Campbell & Fiske, 1959; Feldman & Newcomb, 1969; Marks, 1967; Marsh, 1966; Panos & Astin, 1968; Summerskill, 1962). However, the focus of these studies was principally on the characteristics of individual students, rather than on their interactions with college environments. The student attrition phenomenon was often explained in terms of the students' characteristics, personal attributes and shortcomings (Berger et al., 2012; Habley et al., 2012; Spady, 1970, 1971; Tinto, 1993, 2006). According to Berger et al. (2012), previous studies "had been grounded in psychology rather than sociology" (p. 18). Moreover, as Spady (1970) noted, these studies lacked "theoretical and empirical coherence ... conceptual clarity, methodological rigor, complexity of design, breadth, and analytic sophistication ... definite theoretical basis" (p. 64). He concluded his review of the student retention literature before 1970 with the assertion that the absence of what he called an "analytical-explanatory category" is "unfortunate and glaring" (Spady, 1970, p. 64).

During the late 1960s and the 1970s, systematic studies and attempts to conceptualise retention frameworks that included the notion of the student-college relationship became more common (Bayer, 1968; Bean, 1980; Feldman & Newcomb, 1969; Marsh, 1966; Panos & Astin, 1968; Spady, 1970, 1971; Terenzini & Pascarella, 1977; Tinto, 1975). According to Berger et al. (2012), by 1970, the era of building retention theories had begun, largely with William's (1971) work, *Dropouts from Higher Education: An Interdisciplinary Review and Synthesis*. This was the first sociological student retention model. According to Spady, there are two systems in each college (academic and social) and at least two factors in each system that influence a student's decision to withdraw: grades and intellectual development in the academic system and normative congruence and friendship support in the social system. After Spady's work, later studies and models took into account the nature of students' institutional relationships. By the 1970s, the introduction of the term "retention" to describe student persistence included the concept that institutions shared responsibility in influencing students' decisions regarding "dropping out" (Habley et al., 2012).

Since then, many student retention studies have been conducted and theoretical models have been developed, such as Tinto's Institutional Departure Model (1975, 1993), Bean's Student Attrition Model (1980, 1982), the Student-Faculty Informal Contact Model (Pascarella, 1980), Astin's Student Involvement Model (1984), the Non-traditional Student Attrition Model (Bean & Metzner, 1985) and the Student Retention Integrated Model (Cabrera, Nora, & Castaneda, 1993). Some of these theoretical models are reviewed in this paper.

3.1 Theoretical and Conceptual Roots of Student Retentions Models

While the theoretical and conceptual backgrounds of the student retention models are varied, the authors of the most distinguished student retention models of the last four decades, Spady, Tinto and Bean point to three famous theories or conceptual theoretical sources as having inspired their work. These are the suicide theory (Durkheim, 1951) from the field of sociology, the theoretical views of the rites of passage in tribal societies (Van Gennep, 1960) from the field of social anthropology and the concept of labour turnover from the field of human

resources (Price, 1977).

First, most of the psychological and sociological student retention theories and models developed after 1970 have their roots in Durkheim's famous work, "*Suicide*" (Durkheim, 1951). According to Durkheim, suicide can be attributed to the individual's lack of social and intellectual integration into the social life of his or her society. This is the linking point, according to the early student retention models (Spady, 1970, 1971; Tinto, 1975), between suicidal behaviour and student attrition behaviour. Tinto (1993) argued that, although dropping out from a higher education institution is not necessarily equivalent to failing, there are some similarities with the process of suicide in the sense that both behaviours can be thought of as a form of voluntary withdrawal from a particular society. He stated that "there are enough intriguing analogies between the two situations" (Tinto, 1993, p. 99). This adoption of the views of suicide theory in the study of the student attrition phenomenon was first introduced by Spady (1971). It was the foundation of his pioneer work "*Dropouts from Higher Education: Toward an Empirical Model*".

Moreover, the famous and most cited student retention model of Tinto (1993) relied partially on Van Gennep's (1960) study of the rites of passage in tribal societies from the field of social anthropology. In this work, Van Gennep described the three stages of separation, transition and incorporation as phases of transmission of relationships between succeeding groups (Elkins, Braxton, & James, 2000; Tinto, 1987, 1993). Tinto (1993) utilised this concept of rites of passage to explain "the longitudinal process of student persistence in college" (p. 94). He argued that, in the first phase, college students have to "separate" themselves from their old communities to allow for the adoption of the norms and behaviour of their new ones. In the next phase, college students "transition" towards the final stage of incorporation within the norms of the new community. Finally, in the third phase, after successfully separating themselves from the norms and behaviours of their old communities, students become integrated in the new societies of their colleges. The adoption of Van Gennep's theoretical views is discussed in more detail later in this paper.

Another theoretical foundation of student attrition studies derived from the studies of turnover in work organisations; particularly from the works of Price (1977) and Price and Mueller (1981). The Student Attrition Model of Bean (1980) was the first model to adopt this concept. Employee turnover in work organisations is defined as "the degree of individual movement across the membership boundary of a social system" (Price, 1977, p. 4). According to Bean (1980), student attrition is analogous to employee turnover and both employees and students leave for similar reasons. In both processes, organisational determinant variables play a vital role due to their effect on satisfaction, which is a major predictor of employee and student retention. Finally, while the "pay" variable is seen as one of the most important predictors of employee turnover in work organisations, Bean claimed that student Grade Point Average (GPA), development, institutional quality and practical value are the equivalent predictors in the education system.

Certainly, other studies have been built on psychological, sociological and economic views different to those outlined above. These studies are discussed later in this paper.

3.2 Types of Student Retention Theoretical Models

For a long time, student retention studies and explanations relied heavily on physiological views that emphasised the role of the personality, abilities and motivation of individual students (Tinto, 1993). The main focus of such studies was on the individual students' personal attributes and shortcomings (Berger et al., 2012; Habley et al., 2012; Spady, 1970, 1971; Tinto, 1993) and many were labelled as psychological studies (Tinto, 1993, 2006). However, since the emergence of new trends in the field beginning in the 1970s, student retention theoretical models and studies have been classified in the literature under various categories based on the perspective being taken; for example, psychological, sociological, organisational, environmental, interactional and economic (Braxton, 2000; Braxton & Hirschy, 2005; Habley et al., 2012; Tinto, 1993).

However, scholars have disagreed in their classification of the perspectives in the student retention theories literature. While Habley et al. (2012) classified retention studies under psychological, cultural, sociological, organisational and economic theoretical perspectives, Tinto (1993) labelled the last three perspectives as variants of what he called the environmental perspective. According to Tinto, the environmental theories are those that emphasise the role of factors other than the individual (psychological) characteristics of the students on their behaviours within their academic institutions. Often, however, the psychological and sociological perspectives seem to be the umbrella categories under which most student retention models fall.

The psychological theories, as noted above, attribute student attrition to the shortcoming and weaknesses of the student him or herself. Tinto (1993) criticised this view, as it ignores the impact of students' institutional and social context on their persistence. He argued that, while psychological theories claim that student attrition can

be reduced by improving students' skills or narrowing the initial selection process to target only those students who are academically suited to the given institution, there is no evidence to support such claims. Examples of psychological studies are the theoretical models of Astin (1984) and Bean and Eaton (2002).

In contrast to the psychological perspective, the sociological theories have been concerned with individuals' attributes and their positions within the wider context of their academic institutions and their society, such as in terms of social status and race (Tinto, 1993). Many of the studies in the literature that have looked beyond the individual attributes of non-persister students can be classified as sociological. According to Habley et al. (2012), the sociological theories "have been the dominant retention construct for the last forty years" (p. 20). However, Tinto (1993) suggested that the underlying perspectives of these theories vary according to the social theories from which they derive.

While, as mentioned, the psychological and sociological perspectives dominate the field, another perspective that is sometimes taken is the organisational perspective. This perspective focuses on the impact on student retention of the organisation of the tertiary institution, such as the administrative system, facilities, resources and number of faculty (Tinto, 1993). Examples of this perspective are the studies of Bean (1980, 1982, 1983). In addition, there is the economic perspective, which, as suggested by the name, takes the view that students weigh the cost of their persistence in their study programs against the benefits (Habley et al., 2012; Tinto, 1993). These costs include, as stated by Habley et al. (2012), the indirect cost of "*the time and energy*" that students devote to external commitments along with the commitments of the college itself. Examples of this perspective are the works of Manski and Wise (1983) and John and Asker (2003).

Finally, there is the unique interactional perspective of Tinto's paradigmatic Model of Institutional Departure (1975, 1993). This perspective explores the longitudinal interactions between individuals' attributes, societies and academic institutions within the constructs and settings of all other perspectives. Tinto (1993) describes the model he built upon this perspective as seeking "to explain how interactions among different individuals within the academic and social systems of the institution and the communities which comprise them lead individuals of different characteristics to withdraw from that institution prior to degree completion" (p. 113).

4. Major Student Retention Theoretical Models

Having briefly presented a historical review on the development of student retention studies and the theoretical and conceptual roots and types of these studies, this section turns to a discussion of the leading student retention theoretical models of the last four decades as reported in the literature. These theoretical models have been cited and examined in many recent empirical studies and are usually considered as providing the conceptual foundations for many studies and assisting in understanding the explanations and interpretations of the findings of the citing and other studies.

The models reviewed in this section are the six most-cited student retention theoretical models as appeared in the available literature. These theoretical models are the Undergraduate Dropout Process Model (Spady, 1970, 1971), the Institutional Departure Model (Tinto, 1975, 1993), the Student Attrition Model (Bean, 1980, 1982), the Student-Faculty Informal Contact Model (Pascarella, 1980), the Non-traditional Student Attrition Model (Bean & Metzner, 1985) and the Student Retention Integrated Model (Cabrera et al., 1993). They are presented chronologically according to their publication dates.

4.1 The Undergraduate Dropout Process Model (Spady, 1970, 1971)

Many authors and researchers in the student retention field considered the Undergraduate Dropout Process Model of William (1970, 1971) as the first theoretical and systematic model in the literature of student retention (Berger et al., 2012; Habley et al., 2012). Moreover, Berger et al. (2012) claimed that this work largely began the era of building retention theories. Only after Spady's work did student retention studies and models begin to take into account the impact of student-college relationships on the student retention phenomenon.

In two consecutive years, Spady (1970, 1971) published his pioneer sociological works: "*Dropouts from Higher Education: An Interdisciplinary Review and Synthesis*" and "*Dropouts from Higher Education: Toward an Empirical Model*". In these two works, Spady presented and revised his model of the undergraduate dropout process that has since become the foundation for recent developments in the student retention field. This model was the first student retention model to link the process of student attrition to Durkheim's Suicide Theory concept of social integration. This idea has gone on to be widely adopted in student retention studies and models, including the most cited and tested model of Tinto (Berger et al., 2012; Durkheim, 1951; Tinto, 1975, 1993).

In his first work, after reviewing the literature of what he called "college dropout", Spady (1970) claimed that: *beyond a few comfortable and familiar generalizations about the relationship between attrition and family*

background, ability, or academic performance, this literature lacks theoretical and empirical coherence ... conceptual clarity, methodological rigor, complexity of design, breadth, and analytic sophistication ... definite theoretical basis (p. 64).

He reported the different categories of the previous studies in this field, as described by Knoll (1960) and Marsh (1966), as census, autopsy, case, prediction (or predictive), philosophical and theoretical and descriptive studies. Spady (1970) further asserted that the absence of what he called an analytical-explanatory category is “unfortunate and glaring” (p. 65). To fill the gap in the student retention literature, Spady started to explain the dropout process by investigating the quality of the interaction between the students and the environment of their academic institutions. This interaction is the result of the exposure of individual students’ attributes such as dispositions, interests, attitudes and skills to the influences, expectations and demands of the different components of their institutions including courses, faculty members, administrators and peers.

Spady’s main assumption was that the outcome of this interaction determines the level of students’ integration within the academic and social systems of their institutions and subsequently their persistence. According to Spady, a student’s decision to stay or withdraw from his or her academic institution is influenced by two main factors in each of two systems: grades and intellectual development in the academic system, and normative congruence and friendship support in the social system.

In his later work, Spady (1971) tested these assumptions in a longitudinal study on a sample of 683 new students who entered the University of Chicago in 1965. The statistical analysis of the study variables resulted in a modification on the initial theoretical model. The final Undergraduate Dropout Process Model is presented in Figure 1.

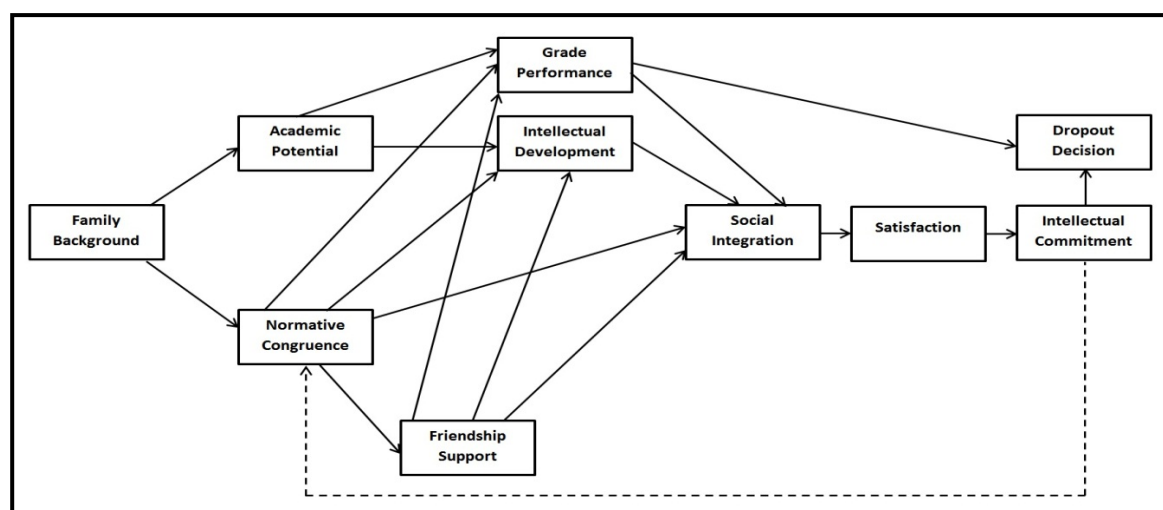


Figure 1. The undergraduate dropout process model

4.2 The Institutional Departure Model (Tinto, 1975, 1993)

Building on Spady’s (1970, 1971) theoretical views on the undergraduate dropout process, Tinto published the first version of his well-recognised Institutional Departure Model, also known as the Student Integration Model (Tinto, 1975). Between 1975 and 1993, this model went through many examinations and revisions by the original author, Tinto, and others (Cabrera, Castaneda, Nora, & Hengstler, 1992; Cabrera et al., 1993; Pascarella & Terenzini, 1979, 1980, 1983; Terenzini, Lorang, & Pascarella, 1981; Tinto, 1988). This resulted in the final modified version (Tinto, 1993), presented in Figure 2.

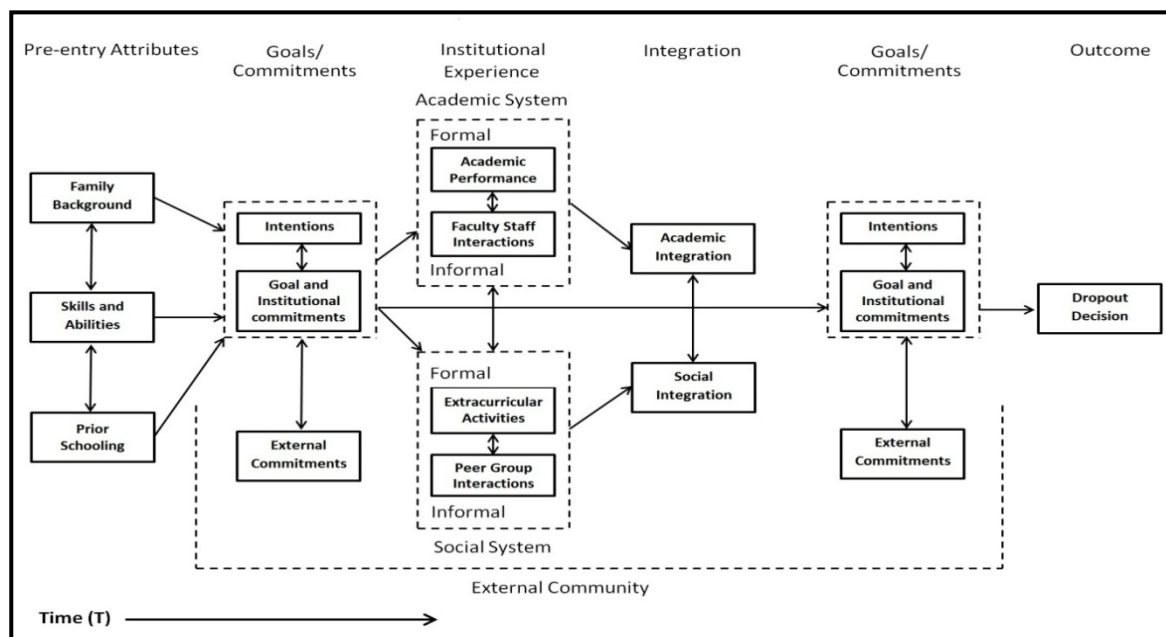


Figure 2. The institutional departure model

The Institutional Departure Model is mainly based on Spady's views of interaction between students and the academic and social systems of their institutions. Tinto also built on Spady's link of the student attrition process to the theoretical views of social integration in Durkheim's Suicide Theory (1951), discussed above. In addition, in his subsequent work *"Leaving College"*, Tinto (1993) adopted the views of the social anthropology work of Van Gennep (1960) on the rites of passage in tribal societies to describe the longitudinal process of students' integration into the societies of their academic institutions. Van Gennep (cited in Tinto, 1993) argued that the transmission of relationships between succeeding groups is marked by the three stages of separation, transition and incorporation.

Linking to this, Tinto argued that students' experiences, especially in the first year of college, are also marked by these stages of passage. Accordingly, a student's persistence or departure is a reflection of his or her success or failure in navigating the stages towards incorporation into the community of the institution. Tinto claimed that during the stage of separation, new college students need to detach themselves from the groups of their previous communities, such as family and high school, which have different values, norms and behaviour to the new communities of their academic institution.

Once a student has started the process of disassociating him or herself from his or her old communities, but before having successfully acquired the norms and values of the new college community, that student is said by Tinto to be in the transition stage. This stage can occur during or after the first one. Finally, having successfully passed through the first two stages, the student can begin the process of integration into the new community of the college.

The final version of Tinto's Model of Institutional Departure (1993) states that colleges consist of two systems: academic and social. Students need to be integrated into both systems to persist in their academic institutions. Academic integration can be measured by the students' grade performance and intellectual development, while social integration is measured by students' interaction with college society (peers and faculty). The model suggests that a student enters college with some goals and commitments. The student's pre-entry attributes, which include the student's family background, skills and abilities and prior schooling, shape these initial goals and commitments. According to the model, the student's experience at college (academic and social integration) will continuously modify (weaken or strengthen) his or her level of initial goals and commitments. The model suggests that the subsequent (modified) level of goals and commitments affects the student's decision to stay in or leave the college (Tinto, 1975, 1993). The main amendment Tinto added to his model was the suggestion that the level of the student's external commitments, such as family and job commitments, affects both the initial and subsequent level of his or her goals and commitments.

Tinto's Model of Institutional Departure (1975, 1993) has been subject to extensive testing and examination over the last four decades and has been cited in many studies investigating the attrition problem in which the constructs, hypotheses and postulations of the models were empirically used, tested and critiqued (Barnett, 2006; Berger & Braxton, 1998; Braxton & Lien, 2000; Braxton, Shaw, & Johnson, 1997; Brunnsden, Davies, Shevlin, & Bracken, 2000; Cabrera et al., 1992; Cabrera et al., 1993; Caison, 2007; Elkins, Braxton, & James, 2000; Liu & Liu, 2000; Longwell-Grice & Longwell-Grice, 2007; Mannan, 2001; McCubbin, 2003; Pascarella, Duby, & Iverson, 1983; Pascarella & Terenzini, 1979, 1980, 1983, 1991, 1995; Sandiford & Jackson, 2003; Terenzini, Lorang, & Pascarella, 1981). These studies adopted and tested Tinto's model in different college systems and environments, giving the model more credibility and validity.

4.3 *The Student Attrition Model (Bean, 1980, 1982)*

Despite Bean's statement that the theoretical foundation of his model was "consistent with the work done on Tinto's model" (Bean, 1980, p. 156), Bean criticised the use of views from Durkheim's Suicide Theory in Tinto's and Spady's student attrition models. He argued that the link between the student dropout process and suicidal behaviour was not evident. Moreover, he said that the models of Tinto and Spady and other past retention studies were simply correlations between attrition and the demographic characteristic variables of the students and their academic institutions without any analytical explanation of the students' reasons for withdrawal (Bean, 1980).

Bean instead utilised the theoretical views of studies of turnover in work organisations; particularly the work of Price (1977). Employee turnover is defined in the original turnover work of Price (1977) as "the degree of individual movement across the membership boundary of a social system" (p. 4). In this model, Bean argued that the process of student attrition in academic institutions is similar to the process of employee turnover in work organisations and that students and employees leave for similar reasons. He stated that his model shared with employee turnover models the postulation that student and employee satisfaction, and subsequently their persistence, is affected by organisational determinants.

To further adjust the employee turnover process to the context of higher education, Bean replaced the "pay" variable, which is a significant indicator of employee turnover, with four educational indicators: student GPA, development, institutional quality and practical value. Therefore, the Student Attrition Model (Bean, 1980) contains the following four categories of variables: dropout as a dependent variable, satisfaction and institutional commitment as intervening variables, the organisational determinants and the background variables.

After statistical analysis of the hypothesis of Price's (1977) turnover model, Bean concluded that the conceptual views of turnover in work organisation studies were useful in explaining the student attrition process. The main findings of Bean's study were that although men and women leave college for different reasons, institutional commitments were important factors for both genders. The main difference between men and women was satisfaction, whereby men might leave even though they were satisfied. The variables that had the greatest impact on determining institutional commitment were the opportunity variables, especially the opportunity to transfer.

In his second synthesised causal model of student attrition (presented in Figure 3) Bean (1982) conducted a second review of Tinto's (1975) and Spady's (1970, 1971) student attrition models. In addition, he incorporated ideas from other theoretical studies, such as the importance of intentions in influencing behaviour (Fishbein & Ajzen, 1975), the Student-Faculty Informal Contact Model of Pascarella (1980) and his own previous Student Attrition Model (Bean, 1980). The purpose of this review was to compare the theoretical perspectives and the different variables of these models to synthesise a general attrition model that could be adjusted for application in different types of institution.

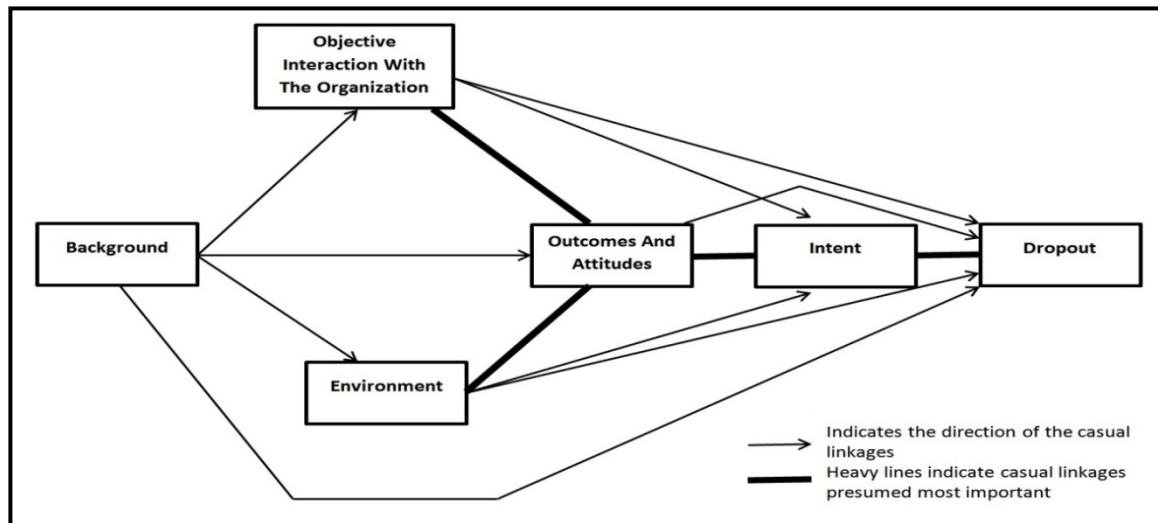


Figure 3. The student attrition model

The model was built to identify the variables that affect students' intentions to leave, which is, as argued by Bean, the main indicator of student attrition. To do this, Bean categorised the variables from the reviewed student attrition models into the following four main categories: background, organisational, environmental and attitudinal and outcome variables. According to Bean (1982), any student attrition study should include variables from these four categories. Additionally, because this model is not exclusive to a single theoretical foundation, it is possible to adapt it for application in different contexts and types of institution. By adding or deleting variables within these four categories, researches can adjust the model for their specific purposes.

4.4 The Student-Faculty Informal Contact Model (Pascarella, 1980)

Based on the assumptions of Spady's (1970, 1971) and Tinto's (1975) theoretical models that student interaction with faculty members is an important component of students' integration with the social and academic systems of their institutions, Pascarella presumed that students' more informal interaction with faculty members could increase the level of their institutional commitment and subsequently minimise the risk of withdrawal. Moreover, he argued that this assumption was supported, especially for students with low institutional commitment, by the findings of his extensive studies with Terenzini of Tinto's model (Pascarella & Terenzini, 1977, 1979, 1980; Terenzini & Pascarella, 1977, 1978). However, Pascarella (1980) stated that there is not much evidence from previous studies to support the direct influence of student-faculty informal contact on student persistence.

Building on this argument, Pascarella (1980) constructed his Student-Faculty Informal Contact Model (presented in Figure 4). In addition to the above assumptions, the model also relied on the view of the educational value and benefit of student-faculty non-class interactions, such as in Sanford (1967) and Gaff and Wilson (1971), and the concept of academic institutions as socialising organisations, as in Newcomb (1962) and Wallace (1967). Moreover, Pascarella (1980) discussed what he called the "philosophical stance which emphasized the importance of college impacts beyond the transmission of facts and knowledge" (p. 545). Although the study investigated the impact of student-faculty informal contact on the various outcomes of college, student attrition was the focus of the model.

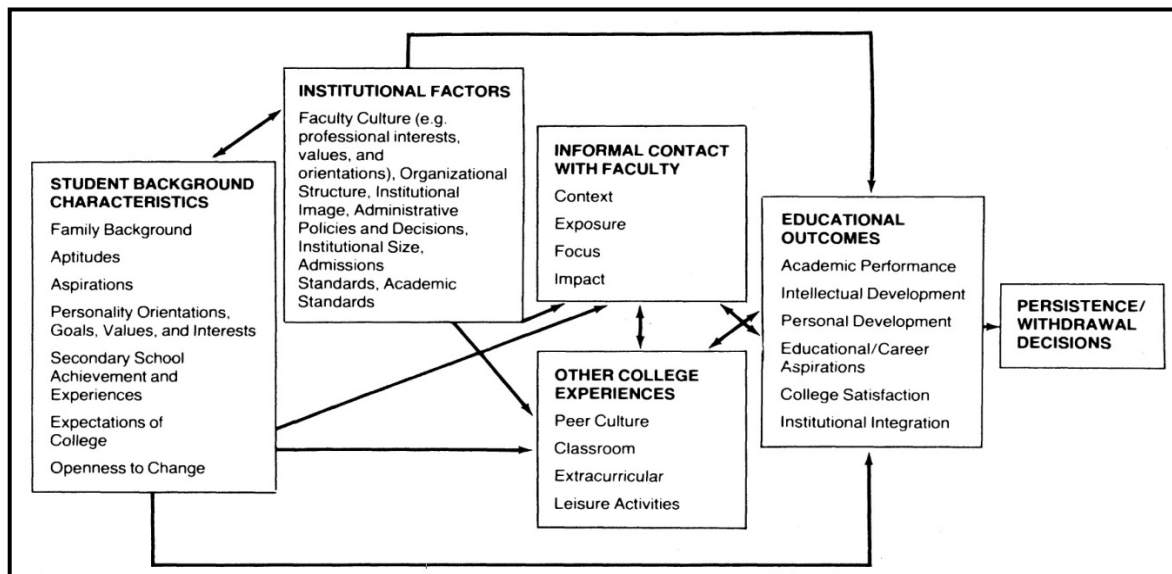


Figure 4. The student-faculty informal contact model

The Student-Faculty Informal Contact Model is a longitudinal model that hypothesises, among other benefits, positive relationships between the amount of student-faculty informal interaction and student retention, especially in the first year. According to Pascarella (1980), the quality of the informal student-faculty non-classroom contact is influenced by a variety of factors including initial student differences, the faculty culture and classroom experiences, peer-culture involvement and the size of the institution.

However, although the model took into account the college experience and other institutional factors, it emphasised the role of students' individual differences, such as the students' personalities, abilities, educational and professional aspirations, prior schooling achievement and experiences and the characteristics of their families and home environments (Pascarella, 1980). Moreover, Pascarella (1980) argued that there are different forms of student-faculty interaction that have different levels of influence. He said the most positive influence comes from interactions that extend the intellectual content of the study program into informal non-classroom contexts.

4.5 The Non-Traditional Undergraduate Student Attrition Model (Bean & Metzner, 1985)

Although Bean and Metzner (1985) described their Non-traditional Undergraduate Student Attrition Model (presented in Figure 5) as sharing similarities with previous studies, they argued that it has a completely different structure. This model focuses on a different type of student: the non-traditional commuter student. Bean and Metzner stated that, while previous models have emphasised the important role of social integration within the academic institution on the student persistence process, this factor has a minimal impact on non-traditional students. Rather, non-traditional students seem to be affected principally by environmental factors, including family commitments and other external responsibilities.

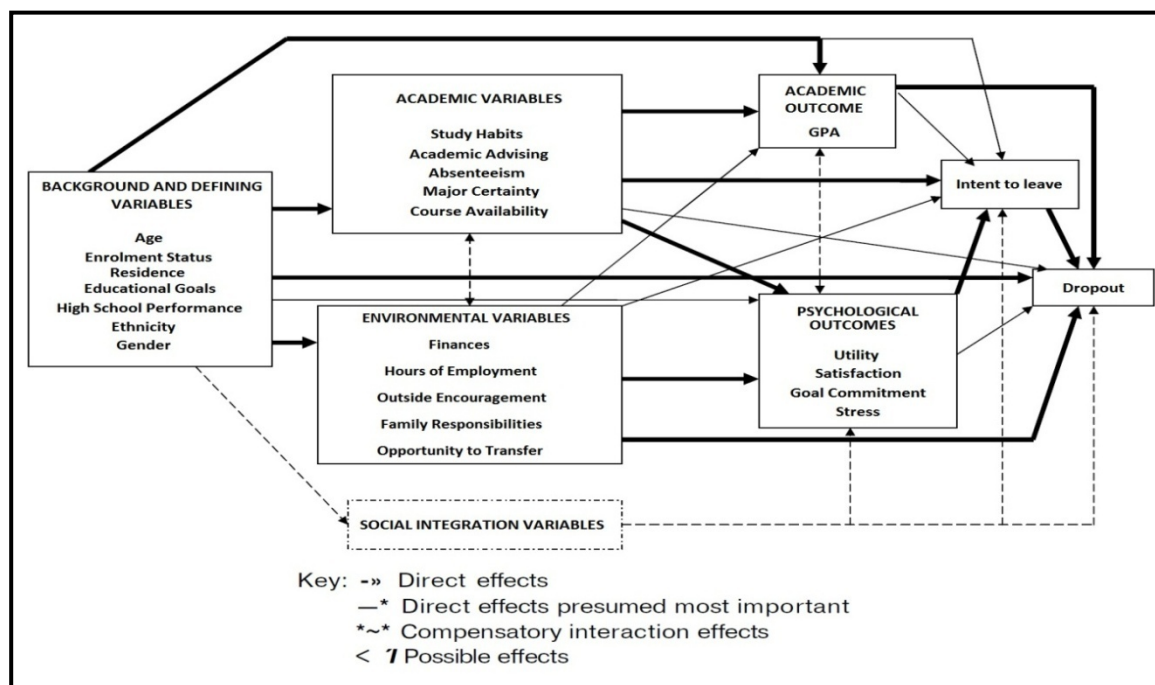


Figure 5. The non-traditional undergraduate student attrition model

Bean and Metzner (1985) argued that there was a lack of consideration in theoretical studies of the experiences of non-traditional undergraduate students. They described the few studies that had focused on commuter students as “overwhelmingly descriptive”. Thus, Bean and Metzner (1985) argued that, since the most recognised theoretical models of student attrition were based on social perspectives and the lack of social integration was one of the defined characteristics of non-traditional students, there was a need to explain the attrition process of such students from a different theoretical perspective. To fill this gap in the student retention literature, Bean and Metzner (1985) built their Non-traditional Undergraduate Student Attrition Model. This model was partially derived from the previous models of traditional student attrition, especially the Student Attrition Model of Bean (1982) and other behavioural theories (Bentler & Speckart, 1981; Fishbein & Ajzen, 1975; Lewin, 1935; Locke, 1976). The model postulated that non-traditional students experience an environmental pressure that includes more interaction with external environmental factors and less interaction with the members or activities of the environments of their academic institutions. Thus, the model gives more importance to external factors than to institutional socialisation factors.

The conceptual framework of the model is based on four sets of variables: academic performance, intent to leave, background and defined variables and, most importantly, environmental variables. First, regarding students’ academic performance, the model hypothesises that students with lower academic performance are more likely to withdraw. Moreover, although high school grades do not have directly affect student attrition, the academic performance of undergraduate students is directly affected by their academic performance in high school. Second, students’ intention to leave is influenced more by psychological outcomes than by academic variables. Third, students’ high school achievements and their educational goals, among other variables from other categories, are the background and defining variables that are expected to influence student persistence. Finally, according to the model, student attrition is most directly affected by environmental variables such as finance, working hours, outside encouragement, family responsibilities and opportunity to transfer.

4.6 The Student Retention Integrated Model (Cabrera, Nora, & Castaneda, 1993)

Based on the recommendations of the study by Cabrera et al. (1992), which presented a suggested integrative framework by merging the variables of the two distinguished student retention models of Tinto (1975) and Bean (1982), Cabrera et al. (1993) conducted an empirical study to test this proposed integrative model. The conclusion of the initial study, which is reviewed in the next section, supported the convergence of the two theoretical models with some amendments. From this, the Integrated Model of Student Retention (presented in Figure 6) was developed.

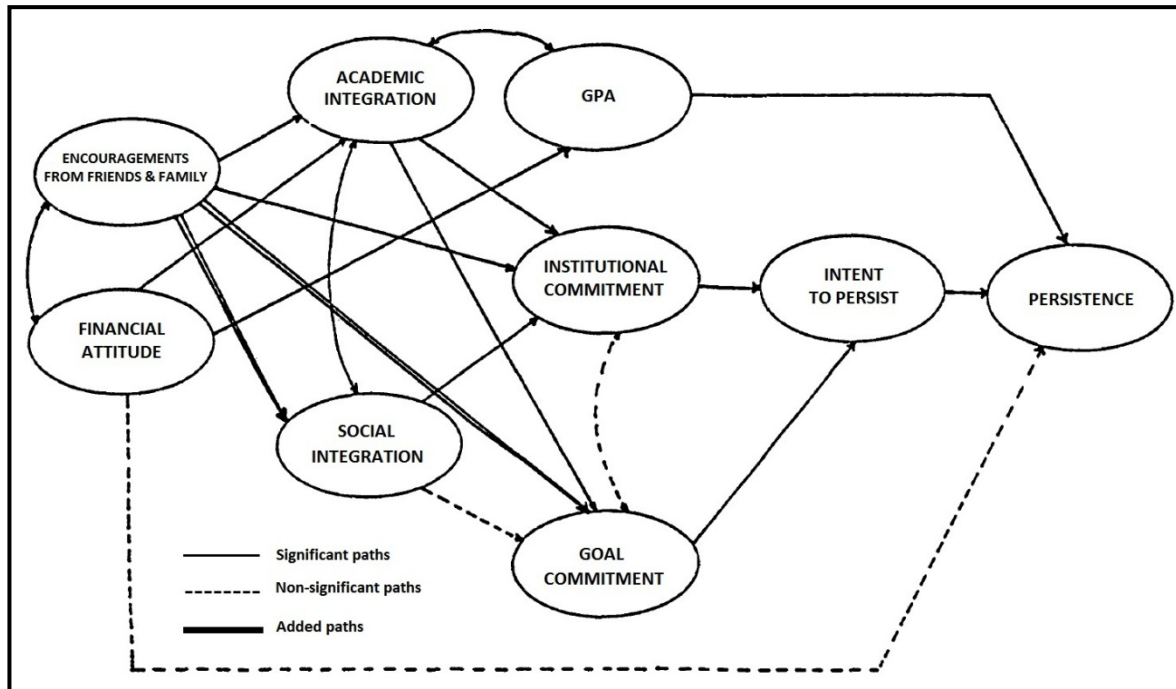


Figure 6. The student retention integrated model

The Integrated Model of Student Retention consists of all the statistically confirmed variables from both theories. Those variables that were not validated through the initial analysis were excluded from the model and all similar constructs were merged. Accordingly, the “courses” and “institutional fit and quality” constructs of Bean’s theoretical model were merged with the “academic integration” and “institutional commitments” constructs of Tinto’s theoretical model, respectively. Further, some indicator variables were extracted from their parent constructs and included in the current model as independent variables. For example, Cabrera et al.’s (1993) statistical analysis found the “GPA” variable, considered in Tinto’s model as an indicator variable of the “academic integration” construct, to have an equivalent status to its parent construct. Hence, it was included in the Student Retention Integrated Model as a separate construct. Finally, the “financial attitudes” and “encouragement from friends and family” variables under the “environment” construct from Bean’s theoretical model were included in the current model as independent variables due to having been found to significantly affect academic integration, institutional commitments and persistence decision.

The findings of Cabrera et al.'s (1993) study indicated that the integration of the two models of Tinto and Bean provided a better explanation and understanding of the student attrition process. Moreover, the statistical analysis confirmed that environmental variables have a more complex role in the student retention formula than was perceived by Tinto. This support Beans' claims of the importance of such factors.

Finally Cabrera et al. (1993) recommended that academic institutions, when designing student retention plans and strategies, focus on the variables that strongly encourage students to persist in their study programs and seek to address the past behaviour of students towards withdrawal. They also stressed the importance of constant monitoring and revision of these retention plans and strategies by the research units of the academic institutions.

4.7 Other Significant Student Retention Theories and Models

In addition to the theoretical student retention models reviewed in the above sections, some other theoretical models and empirical studies have gained consideration in the literature of student retention in higher education. Some of these theoretical models have not been subjected to the same extensive application and examination as those reviewed above. Other studies only synthesise the variables of earlier theoretical models in attempts to develop new models containing only validated variables while excluding all others. An example of this type of study is Cabrera et al. (1992), which merged the famous models of Tinto (1975, 1987) and Bean (1982). Some of these studies are briefly reviewed in the following sections.

4.7.1 The Student Involvement Theory (Astin, 1984)

The Student Involvement Theory, as defined by Astin (1984), “refers to the quantity and quality of the physical and psychological energy that students invest in the college experience” (p. 307). Astin postulated that the amount of students’ involvement in college is positively related to the amount of their learning and personal development.

Although the Student Involvement Theory is an educational theory that focuses on enhancing the student development and learning environment in higher education, it has some implications for the student retention phenomenon. First, it was partially derived from Astin’s (1975) study of college dropouts. Second, according to Astin (1984), student retention is the other face of student involvement, whereby the greater the students’ involvement in their academic institutions, the greater is the rate of their persistence. Astin also argued that most of the reasons given by students for dropping out of college indicate a lack of involvement, which provides support for this theory.

4.7.2 The Convergence between Tinto (1975, 1987) and Bean (1982) Theoretical Models

“*The convergence between two theories of college persistence*” was the title of the study as suggested by Cabrera et al. (1992). This study integrates Tinto’s Student Integration Model (1975, 1987) and the Student Attrition Model of Bean (1982), which are two of the major and most recognised and cited models of student retention. In this proposed integrative framework, Cabrera et al. (1992) empirically examined the similarities and the discriminant validity between these two theoretical models. The purpose was to determine how merging these two theories could enhance understanding of the student attrition phenomenon in higher education.

A statistical analysis of the longitudinal study data, which was derived from 446 participants of a large tertiary institution, revealed that the variables of both theoretical models significantly overlapped. Moreover, the statistical analysis confirmed the assumptions of both theoretical models that student attrition is a result of a complex process of interaction between students’ personal attributes and the characteristics of their academic institutions and the significant impact of student–college fit on students’ intention to persist.

However, the result of the study showed that the Student Integration Model was more robust in regard to the number of confirmed hypotheses. The statistical analysis confirmed almost 70% of the Student Integration Model’s hypotheses compared to 40% of the Student Attrition Model’s hypotheses. Conversely, Bean’s Student Attrition Model contributed better to revealing the significance of the role of external factors in the student retention phenomenon. The main conclusion of the study was that the results of the statistical analysis supported the merging of the two theoretical models, as this gave a comprehensive understanding of the student attrition process. Such a merger was achieved by integrating the variables from both models most related to the student attrition process. These findings led to the development of the Student Retention Integrated Model (Cabrera et al., 1993) reviewed earlier.

4.7.3 Theory Elaboration of Tinto’s Institutional Departure Model (Berger & Braxton, 1998)

In contrast to the theory integration method utilised in the above study, Berger and Braxton (1998) revised the distinguished student retention theoretical model of Tinto (1993) through what they called “theory elaboration”. They defined the process of theory elaboration as “the application of new concepts borrowed from other theoretical perspectives to explain the focal phenomena” (Berger & Braxton, 1998, p. 104). Unlike theory integration, whereby two validated theoretical models are merged to develop a more comprehensive model, theory elaboration is suitable for use with those theoretical models that are insufficient or limited to particular contexts or situations. The purpose of the “borrowed concepts” is thus to fill the voids in these models.

Berger and Braxton (1998) claimed that, although Tinto’s student retention theoretical model had “near-paradigmatic status” in the student retention field and had been empirically tested in many studies, only five of the 13 assumptions of the model were “robustly supported”. Moreover, they argued that the social integration construct that formed two of the supported assumptions of Tinto’s model lacked explanation. Thus, Berger and Braxton (1998) developed the required explanations through theory elaboration of Tinto’s Institutional Departure Model (1993).

To do this, Berger and Braxton (1998) omitted the variables from Tinto’s model that lacked support; that is, those related to initial and subsequent goals and commitments and the academic integration construct. Meanwhile, to develop an explanation for the social integration construct, they added three organisational attribute variables expected to provide a possible source of influence and lead to different levels of social integration. These organisational attribute variables were institutional communication, fairness in policy and rule enforcement and participating in decision making.

The statistical analysis of the study supported the elaboration made to Tinto's theoretical model. The study findings suggested that organisational attribute variables could be added to the model as a possible source of social integration. Moreover, the influence of the organisational attributes was not limited to social integration. The analysis of the study variables also suggested an indirect influence of the organisational attributes on students' intentions to withdraw. Thus, it was one of the key findings of the study that organisational attributes play a significant role in the student retention phenomenon.

5. Limitations of the Student Retention Theories

Studies of the student retention issue in higher education, including the theoretical models, as in other research fields, have their shortcomings and limitations. One of the most well-recognised limitations of the student retention studies concerns their generalisability (Jeffreys, 2012). Most student retention studies are undertaken in particular institutions and their findings are usually not easily generalised to other institutions (Boston & Ice, 2011; Pascarella, 1980). This might be because low student retention is a campus-based phenomenon (Berger et al., 2012). Hence, every case has unique characteristics and circumstances that make it difficult to generalise its findings to other cases (Cabrera et al., 1993; Caison, 2007; Chapman & Pascarella, 1983; McInnis & James, 2004). However, the high frequency of these theoretical models and distinguished empirical studies being tested and replicated in other contexts should enhance their generalisability (Cabrera et al., 1992; Ho Yu, DiGangi, Jannasch-Pennell, & Kaprolet, 2010; Pascarella, Terenzini, & Wolfle, 1986).

Other limitations of student retention studies relate to the research strategies they utilise and the types of sample institutions and participants they study. One of the criticisms of student retention studies is that they have primarily focused on traditional academic institutions and traditional types of students (Bean & Metzner, 1985; Braxton & Lee, 2005). As noted by Bean and Metzner (1985), most of the early studies were conducted in ordinary four-year institutions with students of average age group and social background. These authors claimed that among the great number of studies that investigated the low student retention problem, only a few studies focused on the commuter four-year institutions (Bean & Metzner, 1985). Moreover, there was a lack of studies on students of minority groups and part-time older students.

Regarding the research strategies used, one of the shortcomings of the student retention literature has been the dependence of the leading theoretical models and early distinguished studies on the quantitative research techniques (Jones, 2008; Ozga & Sukhnandan, 1997). As a consequence, students' experiences in the academic and social systems of their academic institutions and in their own external off-campus communities might have been inadequately explored.

Finally, concerning the theoretical and conceptual background, Bean (1982) pointed to an overabundance of non-theoretical descriptive studies in the field of student retention research. He argued that such studies are only useful if they aim to find who is leaving rather than why they are leaving. Instead, he suggested that the relations between the variables of these studies should be reinvestigated using theories. However, as noted by Bean and Metzner (1985), many student retention studies have relied heavily on the assumptions of Tinto's models (1975, 1993), which were not designed to study non-traditional students and did not include some of the major attrition factors such as the organisational factors. Moreover, Tinto (1982) discussed the student retention models' inadequacy in distinguishing between transferring and withdrawing completely from the higher education system. He criticised his earlier theoretical model of 1975, stating "it does not adequately distinguish between those behaviours that lead to institutional transfer and those that result in permanent withdrawal from higher education" (Tinto, 1982, p. 689).

6. Summary and Conclusion

This paper presented an extensive and analytical review of the major conceptual and theoretical models and empirical studies in the student retention field over the last four decades. It was preceded by a brief historical background of the establishment and development of such research field. As mentioned above, concerns about low student retention dated back to the 1600s. However, systematic studies did not until the early 1970s.

In general, the early pioneer works of student retention were influenced by three major theories and conceptual models. These are the suicide theory (Durkheim, 1951) from the field of sociology, the theoretical views of the rites of passage in tribal societies (Van Gennep, 1960) from the field of social anthropology and the concept of labour turnover from the field of human resources (Price, 1977). Moreover, later studies of student retention were interpreted according to different theoretical perspectives including physiological, psychological, sociological, cultural, organisational, environmental, interactional and economic views.

Regarding the factors that are mostly linked or reported as causing students to voluntarily leave their study

programs before graduation, it is worth mentioning that these factors were investigated and discussed differentially in the student retention models. The classification in the theoretical models of the constructs or variables of student attrition depends on the type and theoretical background of the models. For example, the student attrition factors of the psychological models relate to the attributes of the students themselves, whereas sociological models consider the impact of social and institutional factors. Thus, it would not be useful to list all of the specific reasons for student withdrawal as reported in the literature due to the number of these that are likely to be irrelevant and inapplicable to other situations. However, among all of the variables of student attrition, the quality of the student's institutional experience and the level of his or her integration into the academic and social system of the academic institution were the most influential variables as reported by the major student retention models (Castaneda, Nora, & Hengstler, 1992; Cabrera et al., 1993; Spady, 1970, 1971; Tinto, 1975, 1993).

Moreover, the focus of the student retention theoretical models was not on the specific reasons that students withdraw from their study programs, but rather on why some students react to these specific factors by withdrawing. This is because these factors, while constituting challenges, are not necessarily the actual causes of withdrawal. For example, a student having academic difficulties might persist if successfully integrated into the college environment and vice versa (Tinto, 1975, 1993). Another example is student transfer, which can be attributed to many different variables, such as students' levels of educational goals and academic abilities, lack of academic and/or social integration and financial issues. The factors involved in student transfer are far from straightforward. A student might transfer from his or her current institution to a better one because of his or her higher levels of educational goals and academic abilities. Conversely, another student might transfer to what seems a less strict institution because of his or her lower educational goals and academic abilities. In both scenarios, the direct withdrawal reasons reported by the non-persister students are the same, transfer; however, the motivations are contrastive.

Finally, The paper concluded by shedding the light on some of the shortcomings and limitations of the student retention theories. These limitations were referred to the generalizability and the utilised research strategies. Moreover, many researchers criticized reliance of many of the earlier conceptual models on the descriptive non-theoretical methodological techniques.

References

- Astin, A. W. (1975). *Preventing Students from Dropping Out*. Jossey-Bass.
- Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel*, 25(4), 297-308.
- Barnett, E. (2006). *Validation experiences and persistence among urban community college students* (Doctoral thesis). University of Illinois at Urbana-Champaign, United States. Retrieved from <http://search.proquest.com/docview/305328452?accountid=13552> ProQuest Dissertations & Theses Full Text database
- Bayer, A. (1968). The College Drop-out: Factors Affecting Senior College Completion. *Sociology of Education*, 41(3), 305-316. <http://dx.doi.org/10.2307/2111878>
- Bean, J. (1980). Dropouts and turnover: The synthesis and test of a causal model of student attrition. *Research in Higher Education*, 12(2), 155-187. <http://dx.doi.org/10.1007/BF00976194>
- Bean, J. (1982). Conceptual models of student attrition: How theory can help the institutional researcher. *New directions for institutional research*, 1982(36), 17-33. <http://dx.doi.org/10.1002/ir.37019823604>
- Bean, J. (1983). The Application of a Model of Turnover in Work Organizations to the Student Attrition Process. *Review of Higher Education*, 6(2), 129-148.
- Bean, J., & Eaton, S. (2002). The psychology underlying successful retention practices. *Journal of college student retention*, 3(1), 73-89.
- Bean, J., & Metzner, B. (1985). A Conceptual Model of Non-traditional Undergraduate Student Attrition. *Review of educational research*, 55(4), 485-540. <http://dx.doi.org/10.3102/00346543055004485>
- Bentler, P. M., & Speckart, G. (1981). Attitudes "cause" behaviors: A structural equation analysis. *Journal of Personality and Social Psychology*, 40(2), 226. <http://dx.doi.org/10.1037/0022-3514.40.2.226>
- Berger, J., & Braxton, J. (1998). Revising Tinto's Interactionalist Theory of Student Departure through Theory Elaboration: Examining the Role of Organizational Attributes in the Persistence Process. *Research in Higher Education*, 39(2), 103-119. <http://dx.doi.org/10.1023/A:1018760513769>

- Berger, J., Ramirez, G. B., & Lyon, S. (2012). Past to Present: A Historical Look at Retention. In A. Seidman (Ed.), *College student retention: Formula for student success* (pp. 7-34). Rowman & Littlefield.
- Boston, W., & Ice, P. (2011). Assessing retention in online learning: An administrative perspective. *Online Journal of Distance Learning Administration*, 14(2).
- Braxton, J. (Ed.) (2000). *Reworking the student departure puzzle*. Vanderbilt Univ Pr.
- Braxton, J., & Hirschy, A. (2005). Theoretical developments in the Study of College Student Departure. In A. Seidman (Ed.), *College student retention: Formula for student success* (pp. 61-87). Greenwood Publishing Group.
- Braxton, J., & Lee, S. (2005). Toward reliable knowledge about college student departure. In A. Seidman (Ed.), *College student retention: Formula for student success* (pp. 107-127). Greenwood Publishing Group.
- Braxton, J., & Lien, L. (2000). The viability of academic integration as a central construct in Tinto's interactionist theory of college student departure. In J. Braxton (Ed.), *Reworking the Student Departure Puzzle* (pp. 11-28). Nashville: Vanderbilt University Press.
- Braxton, J., Shaw, S. A., & Johnson, R. (1997). Appraising Tinto's theory of college student departure. In J. C. Smart (Ed.), *Higher Education: Handbook of Theory and Research* (pp. 107-164).
- Brunsdon, V., Davies, M., Shevlin, M., & Bracken, M. (2000). Why do HE Students Drop Out? A test of Tinto's model. *Journal of Further and Higher Education*, 24(3), 301-310. <http://dx.doi.org/10.1080/030987700750022244>
- Cabrera, A., Castaneda, M., Nora, A., & Hengstler, D. (1992). The convergence between two theories of college persistence. *The Journal of Higher Education*, 143-164. <http://dx.doi.org/10.2307/1982157>
- Cabrera, A., Nora, A., & Castaneda, M. (1993). College Persistence: Structural Equations Modeling Test of an Integrated Model of Student Retention. *The Journal of Higher Education*, 64(2), 123-139. <http://dx.doi.org/10.2307/2960026>
- Caison, A. (2007). Analysis of Institutionally Specific Retention Research: A comparison between survey and institutional database methods. *Research in Higher Education*, 48(4), 435-451. <http://dx.doi.org/10.1007/s11162-006-9032-5>
- Campbell, D., & Fiske, D. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological bulletin*, 56(2), 81-105. <http://dx.doi.org/10.1037/h0046016>
- Chapman, D., & Pascarella, E. T. (1983). Predictors of academic and social integration of college students. *Research in Higher Education*, 19(3), 295-322. <http://dx.doi.org/10.1007/BF00976509>
- Durkheim, E. (1951). *Suicide* (J. A. Spaulding & G. Simpson, Trans.). Glencoe: The Free Press.
- Elkins, S., Braxton, J., & James, G. (2000). Tinto's Separation Stage and Its Influence on First-Semester College Student Persistence. *Research in Higher Education*, 41(2), 251-268. <http://dx.doi.org/10.1023/A:1007099306216>
- Feldman, K. A., & Newcomb, T. M. (1969). *The impact of college on students*. Jossey-Bass.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Addison-Wesley Pub. Co.
- Gaff, J., & Wilson, R. (1971). Faculty cultures and interdisciplinary studies. *The Journal of Higher Education*, 186-201. <http://dx.doi.org/10.2307/1980354>
- Habley, W. R., Bloom, J. L., & Robbins, S. (2012). *Increasing Persistence: Research-based Strategies for College Student Success*. Wiley.
- Ho Yu, C., DiGangi, S., Jannasch-Pennell, A., & Kaprolet, C. (2010). A data mining approach for identifying predictors of student retention from sophomore to junior year. *Journal of Data Science*, 8(2010), 307-325.
- Jeffreys, M. R. (2012). *Nursing Student Retention: Understanding the Process and Making a Difference*. Springer Publishing Company.
- John, E. P. S., & Asker, E. H. (2003). *Refinancing the College Dream: Access, Equal Opportunity, and Justice for Taxpayers*. Johns Hopkins University Press.
- Jones, R. (2008). *Student retention and success: A synthesis of research*. Retrieved from Higher Education Academy website: http://www.heacademy.ac.uk/assets/EvidenceNet/Syntheses/wp_retention_synthesis_for

_pdf_updated_090310.pdf

- Lewin, K. (1935). *A dynamic theory of personality: Selected papers* (D. K. Adams & K. E. Zener, Trans.). McGraw-Hill Book Company, inc.
- Liu, R., & Liu, E. (2000). *Institutional Integration: An Analysis of Tinto's Theory*. Paper presented at the Annual Forum of the Association for Institutional Research Cincinnati, OH. Retrieved from <http://files.eric.ed.gov/fulltext/ED445629.pdf>
- Locke, E. (1976). The Nature and Causes of Job Satisfaction1. In M. Dunnette (Ed.), *Handbook of Industrial and Organizational Psychology* (pp. 1297-1349). Chicago, IL: Rand McNally.
- Longwell-Grice, R., & Longwell-Grice, H. (2007). Testing Tinto: How Do Retention Theories Work for First-Generation, Working-Class Students? *Journal of College Student Retention: Research, Theory and Practice*, 9(4), 407-420. <http://dx.doi.org/10.2190/CS.9.4.a>
- Mannan, M. A. (2001). An assessment of the academic and social integration as perceived by the students in the University of Papua New Guinea. *Higher Education*, 41(3), 283-298. <http://dx.doi.org/10.1023/A:1004186830125>
- Manski, C. F., & Wise, D. A. (1983). *College Choice in America*. Harvard University Press. <http://dx.doi.org/10.4159/harvard.9780674422285>
- Marks, E. (1967). Student perceptions of college persistence, and their intellectual, personality and performance correlates. *Journal of Educational Psychology*, 58(4), 210. <http://dx.doi.org/10.1037/h0024941>
- Marsh, L. (1966). College dropouts—A review. *The Personnel and Guidance Journal*, 44(5), 475-481. <http://dx.doi.org/10.1002/j.2164-4918.1966.tb03549.x>
- McCubbin, I. (2003). *An examination of criticisms made of Tinto's 1975 student integration model of attrition*. Retrieved from <http://www.psy.gla.ac.uk/~steve/localed/icubb.pdf>
- McInnis, C., & James, R. (2004). Access and retention in Australian higher education. In M. Yorke, & B. Longden (Eds.), *Retention And Student Success In Higher Education*. Berkshire, UK: McGraw-Hill Education.
- Newcomb, T. (1962). *Student Peer-Group Influence*.
- Ozga, J., & Sukhmandan, L. (1997). *Undergraduate non-completion*.
- Panos, R., & Astin, A. W. (1968). Attrition among College Students. *American Educational Research Journal*, 5(1), 57-72. <http://dx.doi.org/10.3102/00028312005001057>
- Pascarella, E. T. (1980). Student-faculty informal contact and college outcomes. *Review of educational research*, 50(4), 545. <http://dx.doi.org/10.3102/00346543050004545>
- Pascarella, E. T., & Terenzini, P. T. (1977). Patterns of student-faculty informal interaction beyond the classroom and voluntary freshman attrition. *The Journal of Higher Education*, 540-552. <http://dx.doi.org/10.2307/1981596>
- Pascarella, E. T., & Terenzini, P. T. (1979). Interaction Effects in Spady and Tinto's Conceptual Models of College Attrition. *Sociology of Education*, 52(4), 197-210. <http://dx.doi.org/10.2307/2112401>
- Pascarella, E. T., & Terenzini, P. T. (1980). Predicting Freshman Persistence and Voluntary Dropout Decisions from a Theoretical Model. *The Journal of Higher Education*, 51(1), 60-75. <http://dx.doi.org/10.2307/1981125>
- Pascarella, E. T., & Terenzini, P. T. (1983). Predicting voluntary freshman year persistence/withdrawal behavior in a residential university: A path analytic validation of Tinto's model. *Journal of Educational Psychology*, 75(2), 215. <http://dx.doi.org/10.1037/0022-0663.75.2.215>
- Pascarella, E. T., & Terenzini, P. T. (1991). *How College Affects Students: Findings and Insights from Twenty Years of Research*. John Wiley & Sons.
- Pascarella, E. T., & Terenzini, P. T. (1995). The Impact of College on Students: Myths, Rational Myths, and Some Other Things That May Not Be True. *NACADA journal*, 15(2), 26-33. <http://dx.doi.org/10.12930/0271-9517-15.2.26>
- Pascarella, E. T., Duby, P., & Iverson, B. (1983). A Test and Reconceptualization of a Theoretical Model of College Withdrawal in a Commuter Institution Setting. *Sociology of Education*, 56(2), 88-100.

- <http://dx.doi.org/10.2307/2112657>
- Pascarella, E. T., Terenzini, P. T., & Wolfle, L. M. (1986). Orientation to College and Freshman Year Persistence/Withdrawal Decisions. *The Journal of Higher Education*, 57(2), 155-175. <http://dx.doi.org/10.2307/1981479>
- Price, J. (1977). *The study of turnover*. Iowa State University Press.
- Price, J., & Mueller, C. (1981). A causal model of turnover for nurses. *Academy of management journal*, 24(3), 543-565. <http://dx.doi.org/10.2307/255574>
- Sandiford, J. R., & Jackson, D. K. (2003). *Predictors of First Semester Attrition and Their Relation to Retention of Generic Associate Degree Nursing Students*.
- Sanford, N. (1967). *Where colleges fail: A study of the student as a person*. Jossey-Bass. <http://dx.doi.org/10.2307/40223966>
- Seidman, A. (Ed.). (2005). *College student retention: Formula for student success*. Greenwood Publishing Group.
- Spady, W. (1970). Dropouts from higher education: An interdisciplinary review and synthesis. *Interchange*, 1(1), 64-85. <http://dx.doi.org/10.1007/BF02214313>
- Spady, W. (1971). Dropouts from higher education: Toward an empirical model. *Interchange*, 2(3), 38-62. <http://dx.doi.org/10.1007/BF02282469>
- Summerskill, J. (1962). *Dropouts from College The American college: A psychological and social interpretation of the higher learning* (pp. 627-657). Hoboken, NJ, US: John Wiley & Sons Inc. <http://dx.doi.org/10.1037/11181-019>
- Terenzini, P. T., & Pascarella, E. T. (1977). Voluntary Freshman Attrition and Patterns of Social and Academic Integration in a University: A Test of a Conceptual Model. *Research in Higher Education*, 6(1), 25-43. <http://dx.doi.org/10.1007/BF00992014>
- Terenzini, P. T., & Pascarella, E. T. (1978). The relation of students' precollege characteristics and freshman year experience to voluntary attrition. *Research in Higher Education*, 9(4), 347-366. <http://dx.doi.org/10.1007/BF00991406>
- Terenzini, P. T., Lorang, W., & Pascarella, E. T. (1981). Predicting Freshman Persistence and Voluntary Dropout Decisions: A Replication. *Research in Higher Education*, 15(2), 109-127. <http://dx.doi.org/10.1007/BF00979592>
- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of educational research*, 45(1), 89-125. <http://dx.doi.org/10.3102/00346543045001089>
- Tinto, V. (1982). Limits of Theory and Practice in Student Attrition. *The Journal of Higher Education*, 53(6), 687-700. <http://dx.doi.org/10.2307/1981525>
- Tinto, V. (1987). *Leaving College: Rethinking the Causes and Cures of Student Attrition*. University of Chicago Press, Chicago, IL.
- Tinto, V. (1988). Stages of Student Departure: Reflections on the Longitudinal Character of Student Leaving. *The Journal of Higher Education*, 59(4), 438-455. <http://dx.doi.org/10.2307/1981920>
- Tinto, V. (1993). *Leaving College: Rethinking the Causes and Cures of Student Attrition* (2nd ed.). University of Chicago Press, Chicago, IL.
- Tinto, V. (2006). Research and practice of student retention: What next? *Journal of College Student Retention: Research, Theory and Practice*, 8(1), 1-19. <http://dx.doi.org/10.2190/4YNU-4TMB-22DJ-AN4W>
- Van Gennep, A. (1960). *The Rites of Passage* (M. Vizedine & G. Caffee, Trans.). Chicago: University of Chicago Press.
- Wallace, W. (1967). Faculty and fraternities: Organizational influences on student achievement. *Administrative Science Quarterly*, 643-670. <http://dx.doi.org/10.2307/2391080>

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